

ABSTRACT OF THE DISCLOSURE

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A buffer gas contained in a laser gas used for an ArF excimer laser mainly consists of He, and Xe is preferably added to the laser gas. Thus, the ArF excimer laser which can have its pulse frequency raised without upsizing the device can be provided. And, this ArF excimer laser is used for a scanning type exposure device. Mixture piping divided by valves is disposed on piping running from a chamber to an excimer laser gas cylinder, the mixture piping and a Xe gas cylinder are connected, gas exhaust by a gas exhaust module and opening and closing of the valves are controlled by a gas controller to add a trace quantity of xenon gas to the excimer laser gas. Thus, to remedy a burst characteristic and a spike characteristic of the ultraviolet laser device by adding a trace quantity of xenon gas, the xenon gas can be supplied efficiently into the chamber without modifying existing laser gas supply equipment.